

F676
B34
c.2



State of California
The Resources Agency
Department of Fish and Game

**California Bald Eagle Breeding Population
Survey and Trend, 1970-90**

by

Ronald M. Jurek
Nongame Bird and Mammal Section
Wildlife Management Division

1990

CALIFORNIA
STATE LIBRARY

GOVERNMENT
PUBLICATION

Nongame Bird and Mammal Section Report

C - 0 5 2 8 3 1

C-052831

State of California
The Resources Agency
Department of Fish and Game

California Bald Eagle Breeding Population
Survey and Trend, 1970-90

by

Ronald M. Jurek
Nongame Bird and Mammal Section
Wildlife Management Division

1990

ABSTRACT

The Bald Eagle (*Haliaeetus leucocephalus*) breeding population in California has been monitored annually since 1970. Location of breeding territories, breeding status and reproductive success are reported annually by agency biologists and private researchers in accordance with standard survey procedures. The survey data are used in tracking statewide population trends, and they provide important information needed in local conservation, management and protection efforts. The number of known territories increased from more than 30 during the early 1970s to 108 by 1990, and the number of territories occupied each year has increased steadily since the late 1970s, reaching 93 in 1990. The breeding population has been expanding into former breeding range since the early 1980s. Productivity during 1986-1990 has been good, averaging one young per occupied territory.

Nongame Bird and Mammal Section Report. Department of Fish and Game survey coordination support provided by Environmental Protection Program (License Plate, 141) fund; prior support provided by Federal Aid in Wildlife Restoration, W-54-R, and by Federal Aid for Endangered Species, Code 103.

RECOMMENDATIONS

The statewide monitoring program has been an important part of conservation and recovery programs for the Bald Eagle in California. Adequate survey data are necessary for properly managing this species and for monitoring the long-term breeding population trend.

Department staff recommends continued support of annual surveys of each territory by each responsible agency.

1. Continue annual surveys under the coordination of Department of Fish and Game.
2. Continue annual surveys of all known or suspected territories by State and federal wildlife and land management agencies and private cooperators, and expand efforts to search for newly established territories in central and southern California.
3. Ensure that field observers survey each territory at least three times each year in accordance with established guidelines.
4. Encourage use of aerial monitoring of territories when adequate ground-based surveying would not be possible because of difficult access or funding limitations.

ACKNOWLEDGMENTS

Hundreds of observers have participated in nest territory monitoring since the program began. These include employees of the federal and state agencies and of private consulting firms and institutions mentioned in this report. The survey program has been possible because of the support of, and participation by, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service, National Park Service, California Department of Fish and Game, Pacific Gas and Electric Company, BioSystem Analysis, Inc., San Francisco Zoological Society, and many individuals who have contributed to the work of these groups. Their efforts in behalf of this Bald Eagle conservation program are gratefully appreciated.

I wish to thank Mssrs. Robert Lehman, Ron Jackman, and J. Mark Jenkins for their helpful review comments on this report.

INTRODUCTION

Bald Eagles formerly bred throughout most of California, nesting along the entire coastal zone and on the Channel Islands, and inland in the Cascade Mountains, on the Modoc Plateau, in the Central Valley and along the western slope of the Sierra Nevada (Detrich 1986). The size of the breeding population in the State before European settlement is unknown, but apparently it was substantially larger than it is now; past reports indicate that breeding pairs were common over a much larger range and in a greater variety of habitats than in recent decades.

In the late 19th and early 20th centuries, habitat loss, man-caused mortality, and disturbances reduced the size of the Bald Eagle populations in many parts of the breeding range in the State (Detrich 1986). After World War II, the eagle population declined rapidly throughout California and the rest of the nation. Post-war use of DDT on crops and forests contaminated eagle food, causing widespread nesting failure and population decline (Sprunt et al. 1973, Kiff 1980, Risebrough and Jarman 1985).

Bald Eagle nesting had ceased in the southern Sierra Nevada and along the central California coast and most of the north coast by the 1930s. No breeding occurred after the late '40s-early '50s on the Channel Islands and southern coast (Detrich 1986, Kiff 1980).

California's breeding population possibly reached its lowest level in the late 1950s or early 1960s (Lehman 1983, Detrich 1986). No thorough surveys were made during those years, but few nesting pairs were reported from California in response to National Audubon Society's Continental Bald Eagle Project inquiry (Sprunt and Ligas 1963). Detrich's (1986) review of historical information indicated that at least eight nesting territories existed in the State at that time.

By the late 1960s, growing concern about the survival of this species led to governmental agency programs for locating nest sites, protecting the birds, managing their habitats, and monitoring breeding success. The first federal (1967) and State of California (1971) endangered species laws extended protection to Bald Eagles. The California Department of Fish and Game (CDFG) began collecting information in the late '60s on Bald Eagle nesting locations and soon thereafter initiated annual statewide surveys. This interagency monitoring program has become an important part of the Bald Eagle conservation efforts in California.

The purposes of this report are to describe the Bald Eagle breeding population monitoring effort under way in California since 1970, to summarize status of each territory by year, and to show population recovery trends.

BREEDING TERRITORY SURVEY

Background

The Department began maintaining a State inventory of Bald Eagle breeding territories in 1970. Information was obtained primarily from nesting reports received since 1966 from Department field personnel who submitted sightings of selected raptors on "Special Wildlife Species Reporting Cards", and from nest site reports solicited from the U.S. Forest Service (USFS).

In the Department's first systematic breeding territory survey, Thelander (1973) documented nesting status during 1972 and 1973 and obtained historical information on active and suspected territories. The State survey was continued in 1974-1976 under the nationwide sponsorship of U.S. Fish and Wildlife Service (Thompson 1974). The USFS increased its participation in the survey during this time.

The California Bald Eagle Working Team, comprising representatives of State and federal agencies and private industry, was established in 1974 to advise agencies and researchers on management and research matters and to provide guidance for eagle conservation activities. One of the first tasks of this group was the promotion of standardized survey methods; the Working Team and USFS developed survey procedures and a reporting form for use by agencies. In 1977, the Working Team introduced a reporting form designed for reporting twice-annual territory checks, early season (April 15 to May 1) and late season (June 1 to June 15). This replaced an earlier CDFG form that was used typically for reporting single-time status checks of each nest.

Since 1977, the multi-agency program of annual breeding season surveys has been coordinated by the CDFG, which also maintains annual report files. Typically, each land or wildlife management agency has been responsible for monitoring nests on its own or nearby land, with CDFG personnel being responsible for territory monitoring on private land. The major landowner of Bald Eagle territories in the State is the USFS; other landowners are Bureau of Land Management, National Park Service, Pacific Gas and Electric Company, and private entities.

Current Survey Procedures

Since 1983, survey participants have been requested to check nest territories at least three times during the nesting season (more frequent checking has been encouraged) to document occupancy, breeding success, and management needs. Standard guidelines are provided annually to agency personnel, as well as to other researchers conducting Bald Eagle ecological studies, such as the ones sponsored by Pacific Gas and Electric Company in northern California (e.g., PG&E 1990).

Participants have been asked to conduct the survey in accordance with the following schedule:

1. Early March (early incubation) - Territories in northern California should be checked in the first half of March, if possible, or as soon thereafter as road or weather conditions allow. The purpose of the first check is to determine whether the territory is occupied (record presence of adults, courtship behavior, evidence of nest repair or construction, incubation).
2. Late April or early May (early nestling period) - This check is needed to confirm that a territory is unoccupied, or if occupied in March, to determine whether the breeding pair is still tending the nest (incubating eggs or tending young nestlings).
3. Mid-June (late nestling period) - The main purpose of this check is to determine how many nestlings are approaching fledging age.

Survey dates may be modified from these recommended time periods if the territories can be checked more frequently or if particular breeding pairs begin nesting especially early or late in the season. Annual and regional variations in the nesting cycle may be affected by latitude, elevation, climate, disturbances, individual characteristics of breeders, and other factors.

Observers record information on standard survey forms (Appendix A) and submit them at the end of each nesting season to the Department for summarizing and for permanent filing.

From 1986 to 1990, the survey has provided data for assessing statewide and geographical zone population trends, as recommended in the Pacific States Bald Eagle Recovery Plan.

Other Survey-related Contributions

Lehman (1979) surveyed physical and silvicultural features of nesting habitat in the 54 territories known by 1978, and in conjunction with this habitat research, a computer database of nesting habitat characteristics and reproductive success was developed (Lehman et al. 1980).

In 1981, Lehman (1983) assessed statewide breeding status and management. His recommendations for timing and frequency of nest site status checks have been incorporated in subsequent annual surveys (see previous heading). Also, he provided the standard terminology for reporting territory occupancy and productivity data (see pages 4 and 5).

Detrich (1986) reviewed historical distribution of nesting Bald Eagles in California and assessed current nesting habitat conditions in relation to nesting pair carrying capacity of water bodies.

Recently, Carpenter (1990) developed an illustrated guide to aid observers in determining the stage of development of nestlings.

TERMINOLOGY USED IN MONITORING BREEDING STATUS

TERRITORY. An area defended by a pair of Bald Eagles during a breeding season is considered to be a known territory if there is evidence that eggs have been laid any year in that area. Only data from known territories are used in monitoring the Bald Eagle population. Nests built by wintering birds, or "house-keeping" nests, have been reported widely in California (Detrich 1986). but these are not considered to be representative of breeding territories.

A suspected territory is an area that seems to meet at least one criterion for "occupied", except that no clear evidence of egg-laying ever has been obtained. These reports are often helpful in searching out new territories.

OCCUPIED TERRITORY (O). An occupied breeding territory is one "at which there is a 'known or inferred presence of a mated, territorial pair of potential breeders.' This is known when two adults are present on or near the nest, when eggs are laid, or when young are raised. It is inferred when an adult is observed in the nest in an incubating position; when one adult and one bird in immature plumage are present and if nesting behavior is observed; when a nest shows evidence of being recently repaired; or when fresh droppings, molted feathers, [or fresh prey items...] are present. Postupalsky does not usually consider an unrepaired nest at which a single adult is present, or two adults observed together with no known nest, as occupied breeding territories." (From Lehman 1983, p. 2, based on Postupalsky 1974).

$$\% \text{ Occupancy} = \frac{\text{No. of occupied territories}}{\text{No. of territories surveyed}}$$

A territory is considered to have been surveyed if observations were adequate to determine whether the territory was occupied.

STATUS UNKNOWN (SU). A territory is considered to be of unknown status if it was not checked during the breeding season, if it was inadequately checked, or if observations did not reveal sufficient key information to assess occupancy.

OCCUPIED, NOT SUCCESSFUL (ONS). Adequate observations show that an occupied territory failed to fledge young.

$$\% \text{ Failed} = \frac{\text{No. of occupied, not successful territories}}{\text{No. of occupied territories for which success or failure is known}}$$

SUCCESSFUL (1, 2, OR 3). A territory is considered to be successful if at least one nestling is known (flying juveniles observed) or presumed to have fledged (late-stage nestlings observed). Near-fledging-age birds that were translocated for captive breeding or for release elsewhere are treated in tables and in calculations as if they had successfully fledged. Successful territories are indicated by numerals showing the number of fledglings.

No. Young / Pair = $\frac{\text{No. of fledglings}}{\text{(YNG/PAIR)}}$
No. of occupied territories known
to have succeeded or failed

No. Young / Successful Pair = $\frac{\text{No. of fledglings}}{\text{(YNG/SUCC.)}}$
No. of successful territories

OCCUPIED, SUCCESS UNKNOWN (OSU). These are occupied territories that were not adequately monitored late in the season to determine whether young fledged. Success is considered to be unknown if eggs were removed by biologists for captive incubation (Occupied, Eggs Removed, OER).

NOT OCCUPIED (NO). Survey effort was adequate, but observations did not reveal any of the criteria for "Occupied".

It may be normal for some territories to be unoccupied some years. However, failure of monitors to check a site thoroughly, including failure to discover a new alternate nest in a territory, may result in a incorrect assessment that a territory is not occupied.

Long-term lack of occupancy of a recently known territory may result from death or relocation of territorial birds or temporary or permanent habitat unsuitability. An area may be unoccupied for a decade or more and become occupied again. Therefore, terms such as "abandoned", which would imply no further concern for future Bald Eagle use, are not used in this monitoring system.

Changes in habitat characteristics or suspected changes in territory boundaries by Bald Eagle pairs may be sufficient reason for terminating routine monitoring of a previously occupied territory. The decision as to when to end monitoring of such sites is usually left to the discretion of the monitoring agency.

SURVEY RESULTS AND DISCUSSION

The size of the California Bald Eagle breeding population has increased steadily since the late 1970s (Figure 1), and statewide productivity has been good, averaging one young fledged per occupied territory in recent years (Table 1). Restrictions on DDT use in 1972 have contributed greatly to this improvement, as have other eagle protection measures and habitat protection efforts (Jurek 1988).

One hundred and eight known territories have been occupied by Bald Eagles in California during at least one year between 1970 and 1990 (Table 2 and Appendix C). At least 30 of these territories were reported as being occupied at some time during 1970-1975. During the early and mid-1970s, the annually increasing number of breeding pairs counted may have been more a reflection of increasing search effort rather than of an actual increase in the population, although some actual increase probably occurred. Relatively thorough coverage was not achieved until about 1977 (Lehman 1983, Detrich 1986). In the period 1976 to 1980, 58 territories were reported as having been occupied during at least one of those years.

The breeding range during the early 1970s included eight counties in the northern one-quarter of the State. By the late '70s-early '80s, this range had changed little (Figure 2). However, by the early '80s, an expansion of the breeding range had become apparent (Jurek 1988). In 1986-1990, there were 103 occupied territories in 14 counties¹ in the northern one-third of California and in 3 southern counties (Figure 3).

The restoration of a nesting population on Santa Catalina Island off the southern California coast stems from a reintroduction project that began there in 1980 (Garcelon 1988, Detrich and Garcelon 1986); however, that population has not been reproductively successful because of local DDE contamination. Another reintroduction effort has been under way in Monterey County on the central California coast since 1987 by Ventana Wilderness Sanctuary.

Since the late 1960s many reports have been received of suspected nesting territories for which no confirmation of breeding has been obtained. Most of those reported to the Department headquarters are listed in Appendix D, but other such reports also exist in files of local agency districts and regions. Many reports not listed include those considered to be misidentifications, cases of winter nest building, or reports that were too vague to assess.

Data reported on field forms show that some pairs lay eggs in late February, rarely earlier, and most pairs lay in March or April; late nesters lay eggs in early May. On average, one-third of the breeding pairs that attempt to nest each year fail to produce offspring. Nestlings fledge primarily in June and July, rarely in late August. Typically, about half of the successful breeding pairs each year produce one fledgling each, and the other half produce two each; nests with three fledglings are rare, appearing in the California population an average of about once each year.

¹ One site listed for Shasta County actually extends into a 15th northern county, Tehama.

Figure 1.

Breeding population trend in California

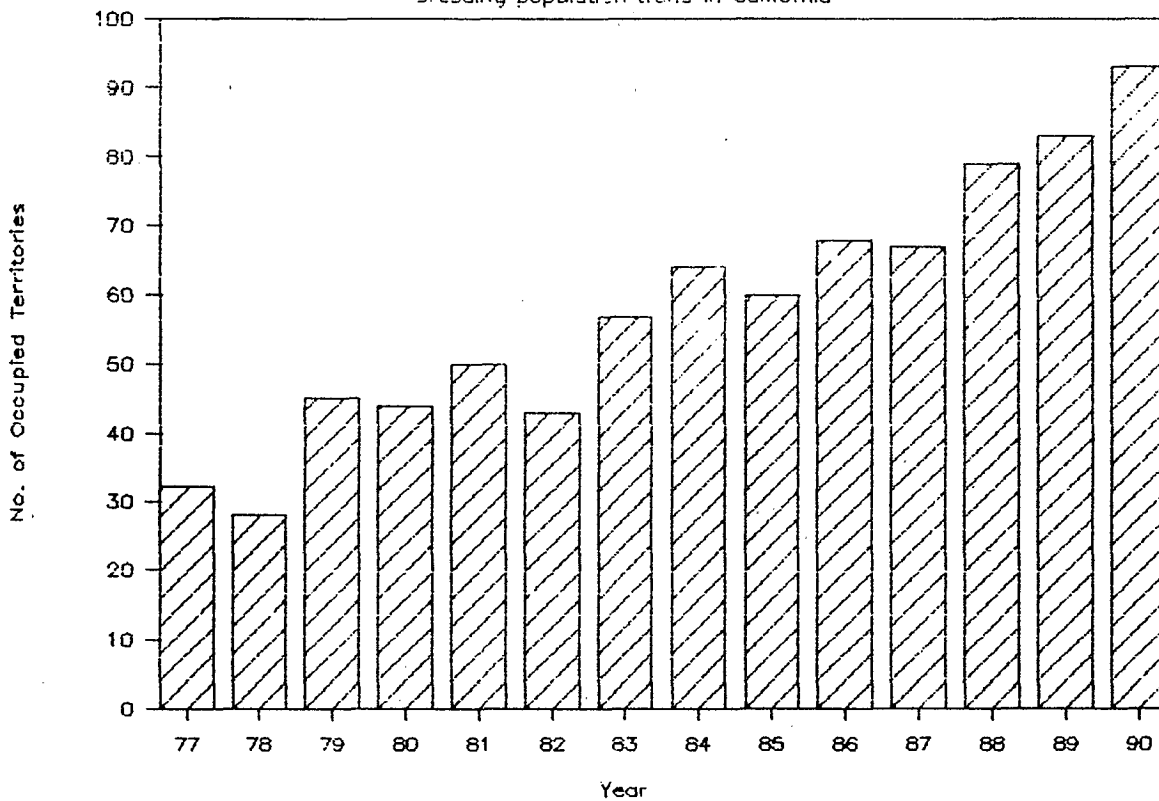


Table 1. Productivity of Bald Eagles Nesting in California, 1977-1990.

Year	No. of Territories Occupied	Percent of Occupied Terr. Failing*	No. of Young Produced	No. of Young per Occupied Territory*
1977	32	35	31	1.00
1978	28	59	15	0.56
1979	45	38	32	0.80
1980	44	26	53	1.26
1981	50	22	60	1.20
1982	43	29	46	1.12
1983	57	22	59	1.09
1984	64	33	65	1.08
1985	60	38	58	1.00
1986	68	31	68	1.06
1987	67	33	64	0.98
1988	79	49	62	0.80
1989	83	28	85	1.06
1990	93	33	95	1.07
Mean (1986-1990)		35		0.99

*Based on those occupied territories for which nesting success or failure is known.





Table 2. California Bald Eagle Breeding Territory Status, 1970-1990.

STATUS CODES

1, 2, or 3 - Number of young fledged
t - One young was translocated elsewhere:
(2t: 2 = number of fledglings expected to
have fledged if one had not been removed)
ONS - Occupied, Not Successful
OSU - Occupied, Success Unknown
OKR - Occupied, Eggs Removed
ONSf - 1 translocated young successfully fostered
to pair following a failed earlier nesting attempt

NO - Not Occupied
SU - Status Unknown, status uncertain, data
conflicting or no report
- No supporting data on file
* - Not checked
S - Nesting activity suspected or rumored

ZONE/SITE	COUNTY	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	
<hr/>																							
(21) Warners/Plateau																							
BLUE LAKE	LASSEN																			2	SU	1	
ASH CREEK	LASSEN																					1	
RESERVOIR F	MODOC															2	3t	2	2#	2t	2	2	2
BEILER RES	MODOC												ONS	ONS	NO	NO	ONS	NO#	ONS#	ONS	SU	1	
HANGING ROCK	MODOC										S	SU	SU	SU	SU	SU	SU	*	*	*	1	1	
(22) Klamath Basin																							
METTORITE	MODOC																		S	2	2	1	
WILDHORSE RES	MODOC		1	2	2	ONS#	2#	ONS#	NO#	OSU	2	1	2	1	2	2	2#	NO#	OSU#	1	2		
WILLOW CR	MODOC								SU	*	1	2	1	1	OSU	2	ONS	2#	OSU#	OSU#	2t	1	
JENNY CR	SISKIYOU																SU	ONS	NO	SU	1	1#	
COPCO RES	SISKIYOU														1	1	1	1	1	ONS	*	ONS	
MUSKGRAVE CR	SISKIYOU															1	1	2	2#	1	1	2	
MT HEBRON	SISKIYOU													S	2	1	1	2	2	ONS	1	ONS	
BRAY	SISKIYOU																1	2t	ONS	1	2	2	ONS
GRASS LK	SISKIYOU													S	S	2	2t	2	2	OSU	OSU	2	
MT DOME	SISKIYOU																2	2	2	1	2t	2t	OSU
MEDICINE LK	SISKIYOU								OSU	SU	SU	SU	SU	*	NO	*	*	*	2#	SU	1	1	
(23) North Coast																							
CAROLINE CR	SISKIYOU	2	2	1	NO	1	ONS	ONS	ONS	NO#	NO#	SU	ONS#	SU	OSU	SU	SU	1	2	ONS	1	ONS	
CANON CR	HUMBOLDT																					2	
TODD RANCH	HUMBOLDT												S	S	S	ONS	2	ONS	2	2	2	1	
HYAMPON	TRINITY			S	2	*	2	SU	SU	ONS	1	OSU	2	ONS	2	1	1	ONS	1	1	ONS	1	
RUTH RES	TRINITY					S	S	S	SU	ONS	NO	ONS	NO#	NO	ONS	1	2	2	2	2	2	2	
LAKE PILLSBURY	LAKE	SU	2	OSU	ONS	1	1	NO#	2	2	ONS	ONS	2	2	ONS	ONS	2	1	ONS	2	NO	2	
MCCREARY RES	LAKE																S	S	*	1	SU	1	

Table 2 (continued).

SITE	COUNTY	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
(24) Shasta/Trinity																						
INDIAN CREEK	SHASTA				S	S	S	S	NO	ONS	NO	NO	NO	NO	NO	*	*	*	*	*	*	*
SALT CR/SUGARLOAF	SHASTA				S	ONS	SU	ONS	NO	1	ONS	1	1	1	1	1	ONS	ONS	NO	ONS	NO	ONS
O'BRIEN	SHASTA														1	1	ONS	OKR	2	1	1	SU
HIRZ BAY	SHASTA				S	NO	NO	NO	SU	1	1	1	1	ONS	ONS	1	2	ONS	1	NO	ONS	ONS
LITTLE SQUAW	SHASTA																					ONS
PACKERS BAY/BASS MT	SHASTA	S	ONS	ONS	2	SU	2	1	2	ONS	2	ONS	1	1	1	ONS	ONS	ONS	ONS	2	ONS	1
MCCLLOUD MOUTH	SHASTA						S	3	1	3	2	2	2t	2	2	ONS	1	2	1	ONS	2	
MCCLURE/KAYNOLDS	SHASTA	S	S	S	NO	SU	NO	SU	NO	NO	1	1	ONS	ONS*	1	ONS	SU	1	2	ONS	1	1
PLUMK CANYON	SHASTA									ONS	ONS	2	1	2*	1	2	1	1	NO	ONS	1	ONS
SILVERTHORN	SHASTA		S				1	ONS*	2	ONS	ONS	2	3t	1*	1	2	3t	1	ONS	ONS	ONS	ONS
DARK CYN/CLIKAPUDI	SHASTA			ONS	ONS	ONS	1	1	3	1	ONS	3	1	NO	ONS	ONS	ONS	2	OSU	ONS	2	ONS
ARBUCKLE	SHASTA																					1
STEIN CR	SHASTA											2	3t	3*	2	2	SU	OKR	NO	NO	ONS	ONS
DOG GUL/BRANDY CR	SHASTA		1	1	1	1	NO*	NO*	1	1	2	SU	2*	SU	1	SU	SU	OSU	2	1	1	3t
JENNING'S GULCH	TRINITY								1	*	*	*	ONS*	2	2	1	2	1	1	1	1	SU
PAPOOSE ARM	TRINITY																		SU	ONS	1	2
BUCKEYE ARM	TRINITY																					1
TANNERY	TRINITY																					1
BOWERMAN RIDGE	TRINITY	2	2	1	2	1	NO	1*	1	NO	1	1	ONS*	2	2	2	1	2	NO	ONS	ONS	ONS
BRAGDON	TRINITY															2	1	1	2t	ONS	1	2
IRISH ISLES	TRINITY																					2
PLUMMER HILL	TRINITY	1	1	2	1	1	2	2*	2*	NO	ONS*	ONS	1*	1*	ONS	ONS	1	2	NO	NO	NO	2
(25) Pit River																						
SISKIYOU LK	SISKIYOU																					1
PIT 6	SHASTA	S	S	S	S	S	ONS	SU	NO	*	*	*	1*	ONS	1	NO	NO	NO	ONS	ONS	ONS	1
IRON CYN RES	SHASTA						S	S	ONS	ONS	1	2	2*	1*	ONS	1	NO	ONS	1	ONS	ONS	2
MCCLLOUD RES	SHASTA													SU	1	2	2	1	ONS	ONS	1	1
HAGEN FLAT	SHASTA	SU	*	S	1	1	ONS	3	2	ONS	ONS	2	1*	2*	ONS	2	ONS	NO	1	1	ONS	1
PIT RIM	SHASTA	OSU*	1*	OSU	2*	1*	ONS	ONS*	SU	NO	1	1	2	2*	1	2	ONS	NO	1	ONS	ONS	ONS
PIT 3 POWERHOUSE	SHASTA																			2	2	ONS
LK. BRITTON, SO.	SHASTA	OSU*	SU*	OSU*	NO	SU	ONS	*	NO	ONS	ONS	ONS	ONS*	ONS	ONS	ONS	OKR	ONS	ONS	ONS	ONS	ONS
LK. BRITTON, NO.	SHASTA	1	2	ONS	SU	NO	ONS	ONS	1	OSU	ONS	ONS*	1*	ONS	2	ONS	ONS	OKR	1	ONS	1	1
CAYTON CR/CLARK RD	SHASTA					ONS	SU	ONS	NO	2*	ONS*	2*	2*	ONS	2	2	ONS	2	ONS	2	1	2
DUSTY	SHASTA															ONS	ONS	ONS	ONS	ONS	2	2
TWO KNOBS	SHASTA										2	2	2*	ONS	2	1	ONS	2	2	ONS	1	2
DRY LAKES	SHASTA						2	2	1	1	1	ONS	1*	2	2	ONS	ONS	2	1	2	2	2
HAT CR	SHASTA	SU	1	OSU	3	3	2*	OSU	ONS	ONS	1	2	SU*	2*	2	2t	2	ONS	2	NO	2t	2t
FALL RIVER MILLS	SHASTA									1	1	2*	2*	*	ONS	3t	ONS	NO	1	2	2	2
SPRING CR	SHASTA																					1
BIG LK	SHASTA	S	S	S	S	OSU	OSU	*	SU	1	*	ONS	1*	2	ONS	ONS	ONS	ONS	1	ONS	2	1
UPPER ROBERTS	MODOC						S	NO	NO*	ONS	OSU	NO	ONS	1	1	ONS	ONS	1*	ONS*	2	2*	ONS
LITTLE EGG LK	MODOC							1*	2	NO*	OSU	1	1	1	2	1	1	1*	1	2	ONS*	2

Table 2 (continued).

SITE	COUNTY	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	
(26) Lassen/Plumas																							
BIG JACK LAKE	LASSEN							1	NO	NO	NO	NO	*	NO	NO	NO	SU	NO	*	*	*	2	
CLEGHORN	LASSEN										1	2#	1	*	1	OSU	NO	2	1	NO	2	NO	
BLACK MT. NO.	LASSEN	*	2#	OSU	NO	SU	SU	OSU	NO	*	1	2	1	1	2	OSU	3t	2	2	1	1	OSU	
BLACK MT. SO.	LASSEN							SU	NO	SU	1	OSU#	*	*	NO	NO	NO	NO	NO	NO	*		
GALLATIN PRAK	LASSEN	SU	2#	2	SU	NO	NO	OSU	ONS	SU	SU	1	1	SU	2	OSU	2t	2	ONS	ONS	NO	1	
WILDCAT POINT	LASSEN																ONS	1	1	ONS	ONS	ONS#	
OSPREY AREA	LASSEN						OSU	NO	ONS	NO	1	SU	NO	NO	NO	NO	SU	NO	NO	NO	NO	SU	
SPAULDING	LASSEN																			2	2	OSU	
ICE CAVE	LASSEN								2	SU	OSU	3	2	1	2	1	1	ONS	ONS	ONS	ONS	ONS#	
ROUND VALLEY RES 2	LASSEN		SU	OSU	1	NO	NO	NO	NO	*	NO	2#	3#	SU	NO	NO	2t	NO	ONS	1	NO	NO#	
MCCOY FLAT	LASSEN							ONS	ONS	ONS	ONS	1	ONS	ONS	1	2	1	1	1	ONS	1	ONS	
SNAG LK	LASSEN							1#	1#	SU	SU	SU	SU	SU	1	1	*	1	1	ONS	SU	SU	
MT MEADOWS, W.	LASSEN					S	OSU	ONS	ONS	*	NO	NO	*	NO	*	NO	NO	ONS	2	ONS	ONS	OSU	
MT MEADOWS, E.	LASSEN							1	1	2#	1	1	2	OSU	1	1	*	ONS	1	2	OSU	SU	
(26) Lassen/Plumas																							
MUD CREEK RIM	PLUMAS																ONS	2	ONS	ONS	SU	1	2
COLLINS PINE NO.	PLUMAS										2	2	1	ONS	ONS	ONS	ONS	1	ONS	ONS	ONS	NO	
COLLINS PINE SO.	PLUMAS					SU	*	2	SU	SU	1	2	2	2	1	2	ONS	1	ONS	SU	OSU	NO	
PRATTVILLE	PLUMAS		SU	ONS	NO	ONS	ONS	NO	NO	ONS	ONS	NO	NO	NO	NO	NO	NO	NO	NO	*	NO	*	
ROCKY POINT	PLUMAS	S	SU	ONS	NO	NO	SU	SU	ONS	NO	NO	NO	ONS	NO	ONS	ONS	ONS	ONS	NO	ONS	ONS	ONS	
COOL SPRINGS	PLUMAS	SU	NO	NO	2#	SU	SU	ONS	ONS	1	1	ONS	2#	NO	ONS	2	1	ONS	2	2	ONS	NO	
BUTT VALLEY DAM	PLUMAS						SU	2	1	ONS	2	1	ONS	SU	2	ONS	NO	ONS	NO	ONS	NO	1	
BUTT VALLEY DAM II	PLUMAS																		2	2	2	2	
ROUND VALLEY RES 1	PLUMAS	SU	2	2	1	2	SU	1	1	SU	ONS	1	1#	OSU	2	1	1	2	ONS	1	ONS	2	
SHAKE LK	PLUMAS																ONS	NO	NO	NO	NO	NO#	
BUCKS LK	PLUMAS	SU	*	*	NO	SU	*	SU	SU	SU	ONS	NO	1#	ONS	NO	ONS	NO	ONS	NO	1	1	ONS	
LTL GRASS VAL RES	PLUMAS																		1	ONS	1	ONS	
ANTelope LK	PLUMAS										OSU	ONS	2	2	ONS	2	2	1	2	1	2	ONS	
MOSQUITO SLOUGH	PLUMAS																				1	2	
COW CR/CROCKER RDG	PLUMAS							SU	ONS	ONS	NO	ONS#	2	ONS	2	1	2	ONS	ONS	1	2		
FRENCHMAN RES	PLUMAS													1	2	2	2	ONS	1	2	2t	2	
(27) Valley/Foothills																							
MCCUMBER RES	SHASTA	SU	#	2	2	1	1	2	1	ONS	ONS	1	1	ONS	OSU	OSU	1	2	2	1	2	2	
BATTLE CR	SHASTA																ONS	NO	*	SU#	ONS	NO	2
STONY GORGE	GLENN													2#	1	ONS	2	2	ONS	1	3	1	
POK POWERHOUSE	BUTTE	S	1	1	1	1	2	2	1	2	1	2	2	1	2	1	2	2	ONS	2t	2	1	
SPRING HOLLOW	BUTTE																				2	1	
(28) Sierra Nevada																							
BULLARDS BAR RES	YUBA																			ONS	1	1	
STAMPEDK RES	SIERRA																OSU	2	SU	2	2	2	
UNION VALLEY RES	EL DORADO																	1	1	ONS	ONS	ONS	

Table 2 (continued).

SITE	COUNTY	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
(30) Central Coast																						
LAKE CACHUMA	S. BARBARA																				1	2
(31) Channel Islands																						
EAST END-CATALINA	LOS ANGELES																		ONS	ONS	ONS	
PINNACLE-CATALINA	LOS ANGELES																				ONS	
TWIN ROCKS-CATALINA	LOS ANGELES																		ONS	ONS	ONSf	NO
(32) South Coast																						
ARROWHEAD	S. BERNARDINO																					ONSf
(35) Carson/Walker																						
TOPAZ LA	MONO																				1f	1

TRACKING POPULATION RECOVERY

California is part of the seven-state planning area covered under the Pacific Bald Eagle Recovery Plan (U.S. Fish and Wildlife Service 1986). The plan encompasses all aspects of research, management, public education needs, and agency responsibilities. The goal is to restore the species to non-endangered, non-threatened status, and the plan establishes criteria for recovery levels.

Recovery

The Recovery Plan recommends that delisting (removing the species from Threatened and Endangered classification) under the federal act should be done on a region-wide (seven-state) basis, under four criteria:

1. There should be a minimum of 800 pairs nesting in the region.
2. Pairs should be producing an annual average of at least 1.0 fledged young per pair, with an average success rate per occupied site of not less than 65% over a 5-year period.
3. Population recovery goals should be met in at least 80% of the management zones with nesting potential, as described in the plan.
4. There should be no persistent, long-term decline in any winter aggregation of more than 100 birds.

The federal delisting criteria apply to the entire seven-state region, so there are no specific criteria for each state. Additionally, the plan's goals for numbers of habitat management areas and numbers of breeding pairs are established by geographic management zones, not by state boundaries (Appendix Figures B, B-1, B-2, and B-3). Of the 47 management zones established in the Pacific states planning area, 15 are included totally or partially in California; 11 of these have breeding population goals. If all zone goals were met, California would have approximately 140 breeding pairs. However, under recovery plan guidelines, federal delisting criteria could be met for the region even if not all of California's zone goals were achieved.

Although total breeding population size in the west in 1990 is already above the recovery goal of 800 occupied territories (Steenhof 1990), distributional zone goals are still well below the levels outlined in the recovery plan. Of the 11 California-area zones with breeding population goals, only 3 (Klamath Basin, Shasta/Trinity, and Pit River) are at or are nearing recovery levels (Appendix Table B-1). California would need another 5 or 6 zones reaching recovery goals if it is to contribute proportionally (80%) toward recovery. However, only one (Lassen/Plumas) of the other 8 "breeding area" zones encompassing California is closer than 70% of the recovery population target. Other western states are having similar shortfalls, meaning that recovery criteria are still far from being achieved.

Reclassification to 'Threatened'

When the Recovery Plan was prepared in 1985, Bald Eagle populations in the Pacific States already appeared to be increasing. The plan recommended that for California and each of 4 other states of the west, reclassification of this species to threatened status on the federal list (in all 5 states or in each one separately) "could be considered...if the number of nesting pairs continues to increase annually from 1985 to 1990."

Recently, the U.S. Fish and Wildlife Service began assessing whether reclassification should be made over a broader area of the country (Federal Register, 50 CFR, 55(26):4209-4212).

California survey data for the monitoring period 1986-1990 (Appendix Tables B-2 to B-6) are being assessed by the Pacific States Recovery Team and the Service in conjunction with this federal reclassification review. Data from California and the other states in the Pacific recovery area indicate that the breeding population in this part of the country has continued to increase throughout the five-year period, thus meeting the recovery plan's recommended criterion for reclassification to threatened status (Steenhof 1990).

LITERATURE CITED

- Carpenter, G. P. 1990 (in press). An illustrated guide for identifying development stages of Bald Eagle nestlings in the field. San Francisco Zoological Society, San Francisco. 31 pp.
- Detrich, P. J. 1986. The status and distribution of the Bald Eagle in California. M. S. Thesis, Calif. State Univ., Chico. 101 pp.
- Detrich, P. J., and D. K. Garcelon. 1986. Criteria and habitat evaluation for Bald Eagle reintroduction in coastal California. Institute for Wildlife Studies, contract final report (C-1307) to Calif. Department of Fish and Game, Sacramento. 32 pp.
- Garcelon, D. K. 1988. The reintroduction of Bald Eagles on Santa Catalina Island, California. M.S. Thesis, Humboldt State Univ., CA. 58 pp.
- Jurek, R. M. 1988. Five-year status report, Bald Eagle. CA. Dep. of Fish and Game, Sacramento. 15 pp.
- Kiff, L. 1980. Historical changes in resident populations of California Islands raptors. Pages 651-673 in Power, D. M. (ed.) The California Islands: Proceedings of a multidisciplinary symposium. Santa Barbara Mus. of Nat. Hist., Santa Barbara, CA.
- Lehman, R. N. 1979. A survey of selected habitat features of 95 Bald Eagle nest sites in California. Calif. Dep. Fish and Game, Wildl. Manage. Branch Admin. Rep. 79-1. 23 pp.
- Lehman, R. N., D. E. Craigie, P. L. Collins, and R. S. Griffen. 1980. An analysis of habitat requirements and site selection criteria for nesting Bald Eagles in California. Wilderness Res. Inst. report to U.S. Forest Service, San Francisco, CA.
- Lehman, R. N. 1983. Breeding status and management of Bald Eagles in California--1981. In cooperation with Bur. Land Manage. Calif. Dep. Fish and Game Wildl. Manage. Br. Admin. Rep. 83-1.
- PG&E. 1990. Pit 3, 4, and 5 Project (FERC 233), Biological compliance monitoring program - 1989 annual report. Pacific Gas and Electric Company, San Ramon, CA. 64 pp. + appends.
- Postupalsky, S. 1974. Raptor reproductive success: some problems with methods, criteria, and terminology. Pp. 21-31 in Hamerstrom, F. N., Jr., B. E. Harrell, and R. R. Olendorff (eds.). Management of Raptors. Raptor Research Rep. No. 2. Raptor Res. Foundation, Vermillion, SD.
- Risebrough, R. W., and W. M. Jarman. 1985. Organochlorine contaminants in California Bald Eagles: origins and potential effects on reproduction. Biosystems Analysis, Inc. report to Pacific Gas and Electric Company, Appendix I-A of Pit 3, 4, and 5 Project, Bald Eagle and Fish Study.
- Sprunt, A., IV, and F. J. Ligas. 1963. Continental Bald Eagle project. Progress report No. 3. In A Florida notebook. Proceedings of the National Audubon Society Annual Convention.
- Sprunt, A., IV, W. B. Robertson, Jr., S. Postupalsky, R. J. Hensel, C. E. Knoder, and F. J. Ligas. 1973. Comparative productivity of six Bald Eagle populations. Trans. N. Am. Wildl. Nat. Res. Conf. 38:96-105.
- Steenhof, K. 1990. The status of Bald Eagles in the Pacific Recovery region in relation to recovery goals. Bureau of Land Management, Boise, ID. 11 pp. (photocopy).
- Thelander, C. G. 1973. Bald Eagle reproduction in California, 1972-1973. California Department of Fish and Game, Wildl. Manage. Br. Admin. Rep. No. 73-5. 17 pp.
- Thompson, R. A. 1974. Bald eagle nesting surveys in California. U.S. Fish and Wildl. Serv., Sacramento. 49 pp.
- U.S. Fish and Wildlife Service. 1986. Pacific Bald Eagle Recovery Plan. U.S. Fish and Wildlife Service, Portland, OR. 163 pp.

CALIFORNIA BALD EAGLE
NESTING TERRITORY SURVEY FORM

No.: _____

Describe tree and nest condition and size, and add other remarks: _____

Observations

[illegible]

Initials Date
of of
Observer Visit

Observations-contd.

(Attach additional pages, if necessary)

Remarks: _____

PLEASE SUMMARIZE:

A. Successful Nestings: No. of young known fledged _____ or probably fledged _____.

B. If no fledglings were produced this season, please answer the following:

How many adults were seen in the territory? ____ Was there evidence of nest
repair or construction? ____ Were adults seen in the nest? ____ Were they in
incubating posture? ____ Number of nestlings observed: ____ Failed during
incubation ____ or nestling stage ____ Other remarks: _____

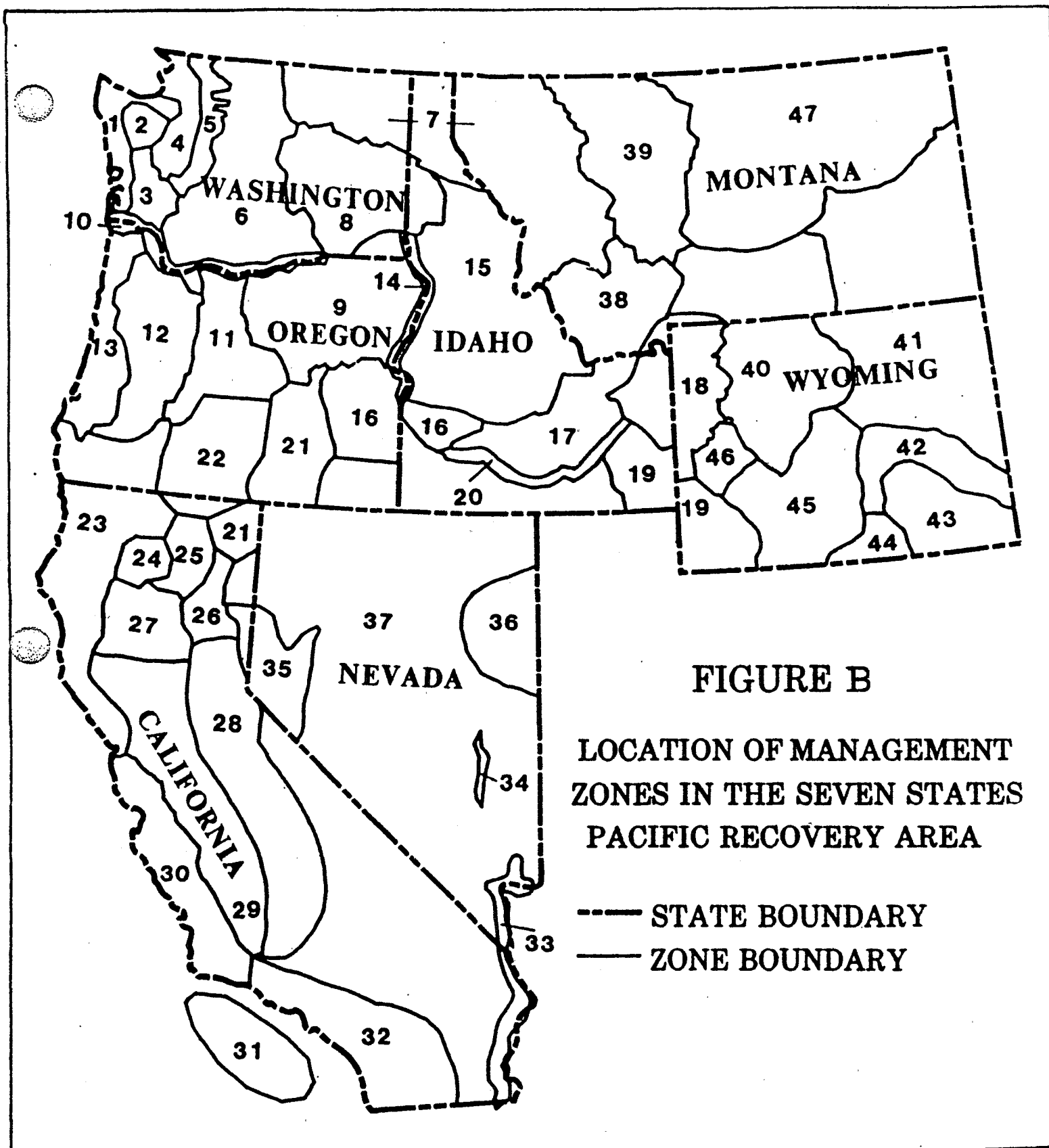
Observer(s) name: _____

Affiliation, address and phone: _____

Mail completed form(s) by August 1 of survey year to:

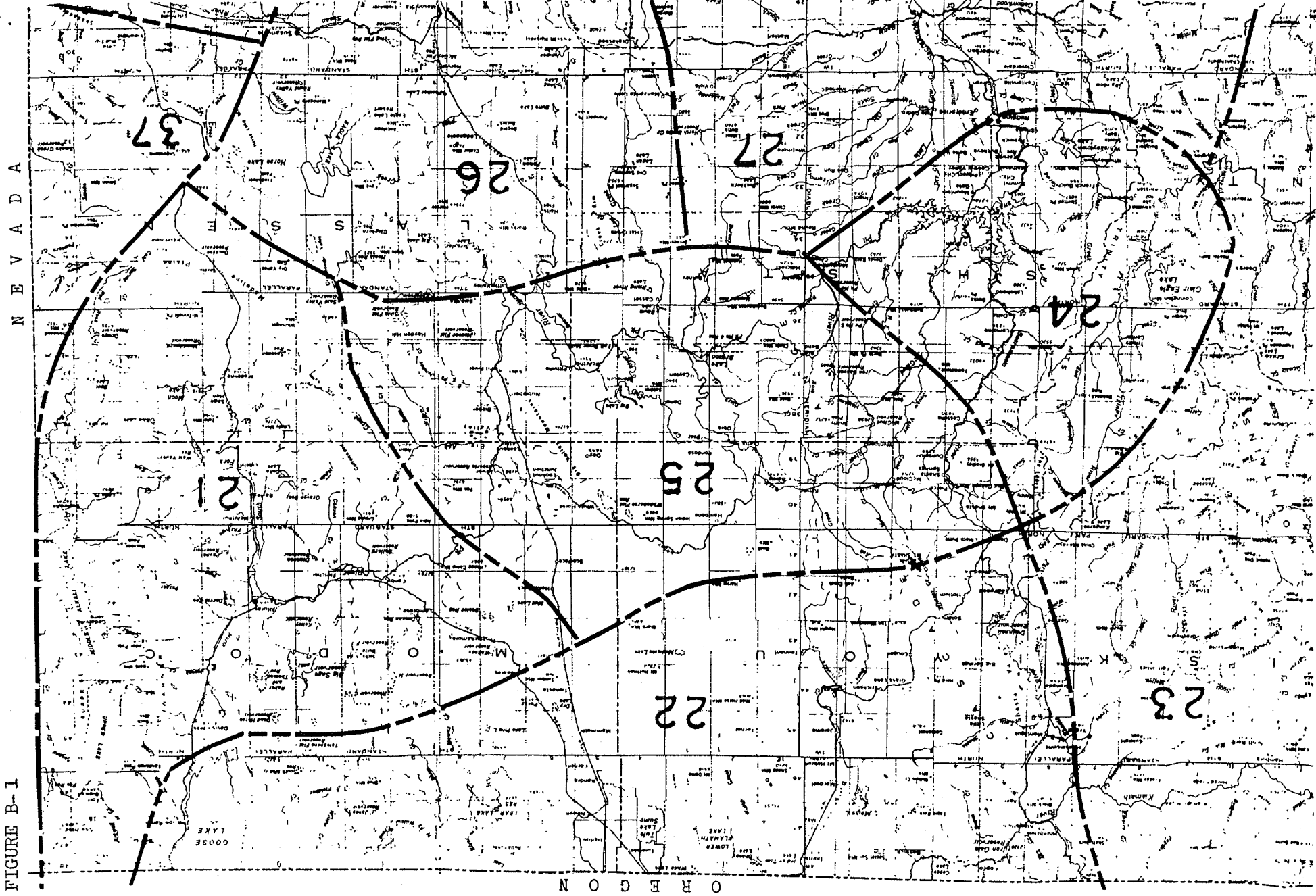
California Department of Fish and Game
Wildlife Management Division
1416 Ninth Street
Sacramento, CA 95814
Attn: R. Jurek

Revised 2/90



C-052853

FIGURE B-1



NEVADA

OREGON

C-052853

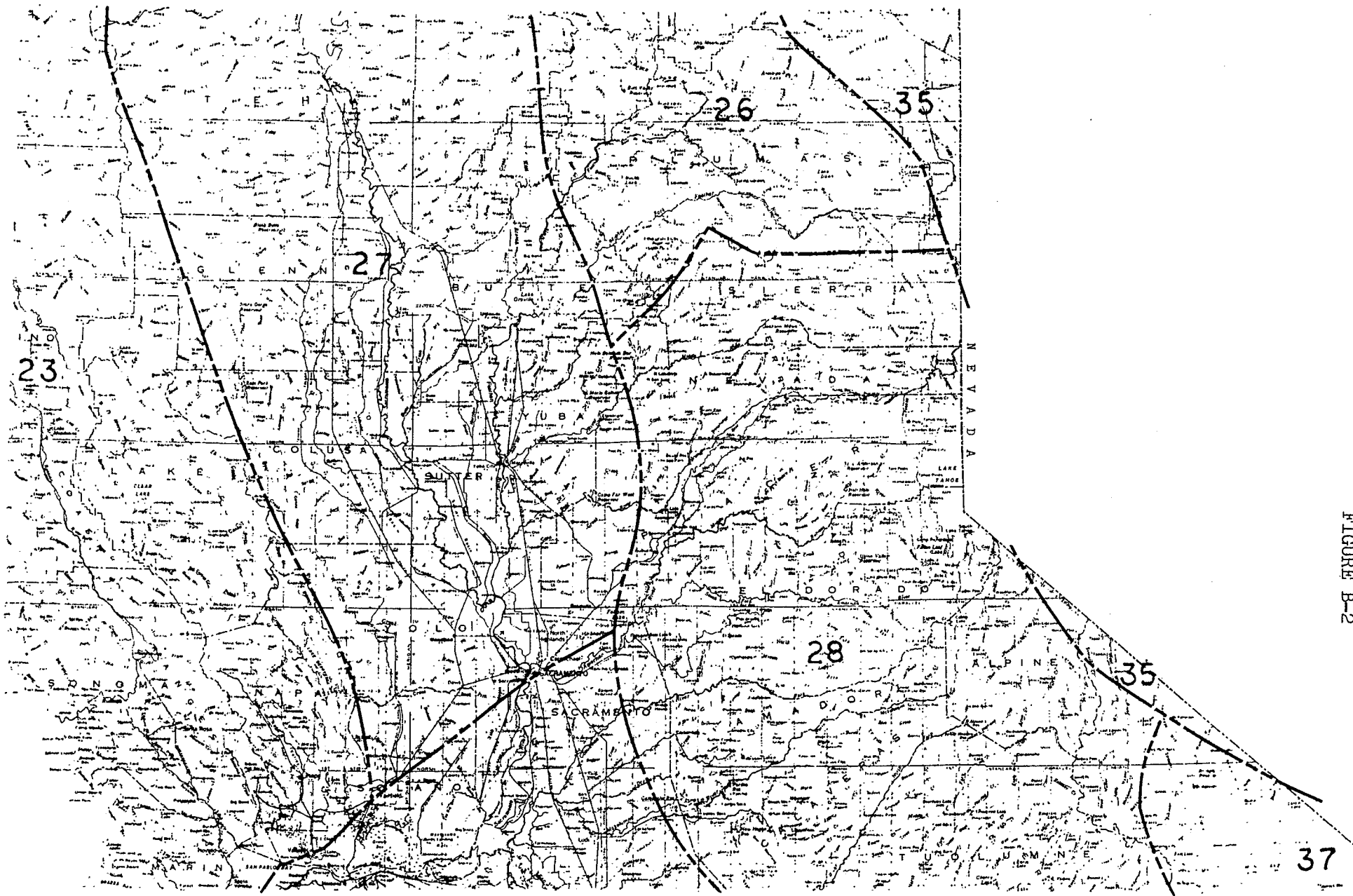
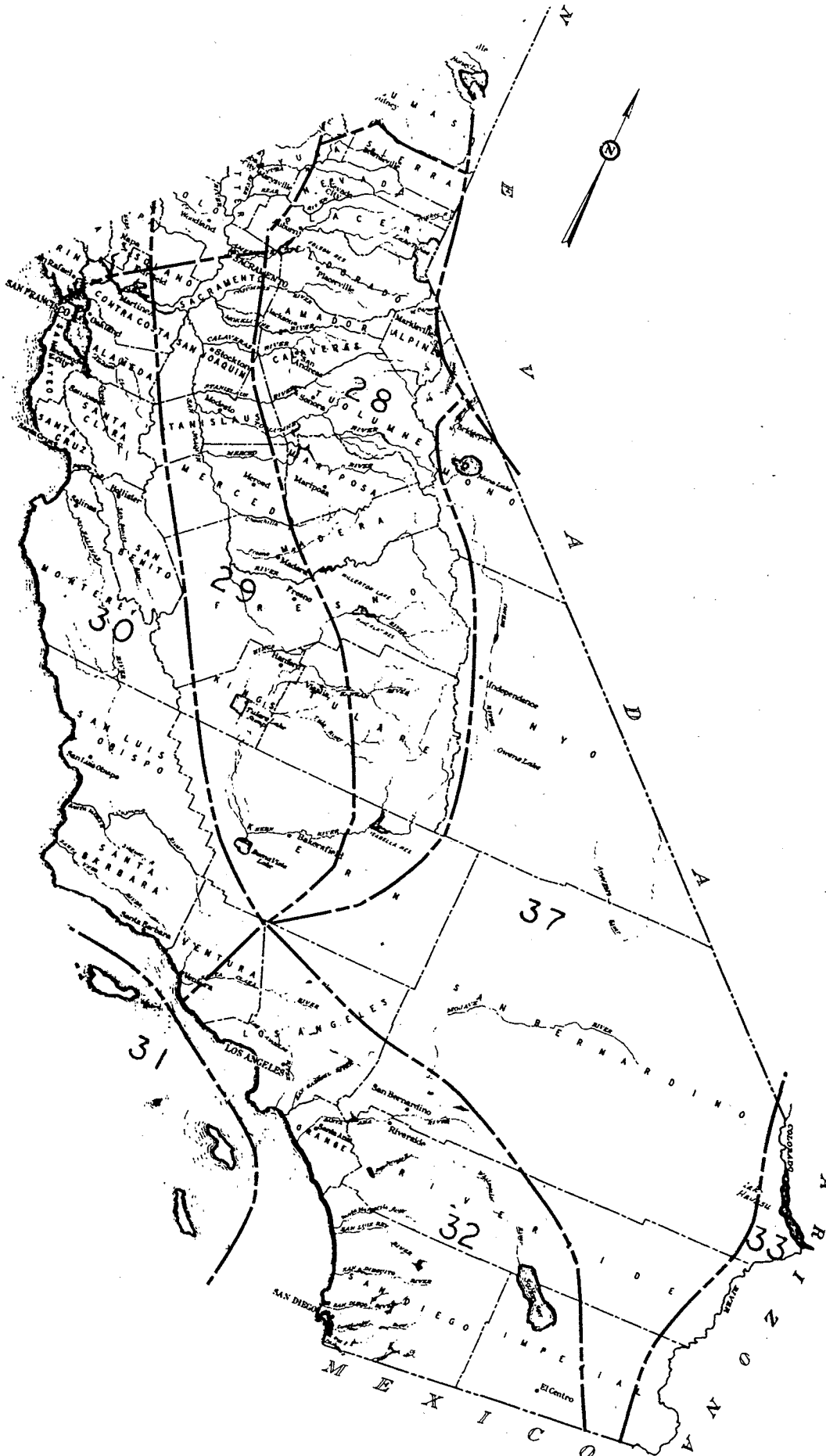


FIGURE B-2

C-052854

C-052854

FIGURE B-3



C-052855

C-052855

Table B-1. Bald Eagle Recovery Zones in California, Showing Zone Goals and Annual Totals of Occupied Territories.

Asterisks (*) denote zones in California that also encompass one or more other states. For these zones, the upper figure gives the total for the entire zone (based on K. Steenhof pers. commun.), the lower for the California portion of it.

ZONE	NO. OCCUPIED TERRITORIES					RECOVERY POPULATION GOAL ¹	PERCENT OF GOAL IN 1990
	1986	1987	1988	1989	1990		
21* HARNEY BASIN/WARNER MTS.	1 1	2 2	3 3	2 2	5 5	10	50
22* KLAMATH BASIN	68 9	68 8	73 9	76 10	80 11	80	100
23* CALIF./OREGON COAST	10 5	11 5	13 6	12 4	17 7	28	61
24 SHASTA/TRINITY	16	11	15	16	19	20	95
25 PIT RIVER	12	16	16	19	19	21	90
26 LASSEN/PLUMAS	20	20	21	21	19	27	70
27 SACRAMENTO VALL/FOOTHILLS	3	3	4	4	5	8	63
28* SIERRA NEVADA	2 2	1 1	3 3	3 3	3 3	15	20
29 SAN JOAQUIN VALLEY	0	0	0	0	0	-	
30 CENTRAL CALIFORNIA COAST	0	0	0	1	1	4	25
31 CHANNEL ISLANDS	0	1	2	2	2	6	33
32 CALIFORNIA SOUTH COAST	0	0	0	0	1	-	
33* COLORADO RIVER	0 0	0 0	0 0	0 0	0 0	-	
35* CARSON	0 0	0 0	0 0	1 1	0 1	-	
37* GREAT BASIN	0 0	0 0	0 0	0 0	0 0	2	0

¹ Pacific States Bald Eagle Recovery Plan (U.S. Fish and Wildlife Service 1986).
(No goals were established for zones 29, 32, 33 or 35.)

Table B-2. California Bald Eagle Breeding Territory Status by Zones, 1986.

ZONE	NO. SURVEYED	NO. OCCUP.	% OCC.	% FAIL	NO. YOUNG	YNG/PAIR	YNG/SUCC.
21	2	1	50%	0%	2	2.00	2.00
22	9	9	100%	22%	13	1.44	1.86
23	6	5	83%	40%	4	0.80	1.33
24	16	16	100%	15%	15	1.15	1.36
25	16	12	75%	45%	9	0.82	1.50
26	24	20	83%	45%	16	0.80	1.45
27	4	3	75%	0%	6	2.00	2.00
28	2	2	100%	0%	3	1.50	1.50
29	0	---	---	---	---	---	---
30	0	---	---	---	---	---	---
31	0	---	---	---	---	---	---
32	0	---	---	---	---	---	---
33	0	---	---	---	---	---	---
35	0	---	---	---	---	---	---
37	0	---	---	---	---	---	---
<hr/>							
	79	68	86%	31%	68	1.06	1.55

Table B-3. California Bald Eagle Breeding Territory Status by Zones, 1987.

ZONE	NO. SURVEYED	NO. OCCUP.	% OCC.	% FAIL	NO. YOUNG	YNG/PAIR	YNG/SUCC.
21	2	2	100%	50%	2	1.00	2.00
22	10	8	80%	0%	11	1.57	1.57
23	5	5	100%	20%	7	1.40	1.75
24	16	11	69%	30%	12	1.20	1.71
25	16	16	100%	38%	12	0.75	1.20
26	25	20	80%	40%	17	0.85	1.42
27	3	3	100%	67%	2	0.67	2.00
28	1	1	100%	0%	1	1.00	1.00
29	0	---	---	---	---	---	---
30	0	---	---	---	---	---	---
31	1	1	100%	100%	0	0.00	0.00
32	0	---	---	---	---	---	---
33	0	---	---	---	---	---	---
35	0	---	---	---	---	---	---
37	0	---	---	---	---	---	---
<hr/>							
	79	67	85%	34%	64	0.98	1.49

Table B-4. California Bald Eagle Breeding Territory Status by Zones, 1988.

ZONE	NO. SURVEYED	NO. OCCUP.	% OCC.	% FAIL	NO. YOUNG	YNG/PAIR	YNG/SUCC.
21	3	3	100%	33%	4	1.33	2.00
22	9	9	100%	33%	7	1.17	1.75
23	7	6	86%	17%	8	1.33	1.60
24	17	15	88%	53%	9	0.60	1.29
25	17	16	94%	56%	13	0.81	1.86
26	24	21	88%	52%	15	0.71	1.50
27	4	4	100%	25%	4	1.00	1.33
28	3	3	100%	67%	2	0.67	2.00
29	0	---	---	---	---	---	---
30	0	---	---	---	---	---	---
31	2	2	100%	100%	0	0.00	0.00
32	0	---	---	---	---	---	---
33	0	---	---	---	---	---	---
35	0	---	---	---	---	---	---
37	0	---	---	---	---	---	---
<hr/>							
	86	79	92%	49%	62	0.82	1.59

Table B-5. California Bald Eagle Breeding Territory Status by Zones, 1989.

ZONE	NO. SURVEYED	NO. OCCUP.	% OCC.	% FAIL	NO. YOUNG	YNG/PAIR	YNG/SUCC.
21	2	2	100%	0%	3	1.50	1.50
22	10	10	100%	0%	13	1.44	1.44
23	5	4	80%	25%	5	1.25	1.67
24	19	16	84%	31%	13	0.81	1.18
25	19	19	100%	32%	20	1.05	1.54
26	26	21	81%	37%	17	0.89	1.42
27	5	4	80%	0%	9	2.25	2.25
28	3	3	100%	33%	3	1.00	1.50
29	0	---	---	---	---	---	---
30	1	1	100%	0%	1	1.00	1.00
31	2	2	100%	100%	0	0.00	0.00
32	0	---	---	---	---	---	---
33	0	---	---	---	---	---	---
35	1	1	100%	0%	1	1.00	1.00
37	0	---	---	---	---	---	---
<hr/>							
	93	83	89%	28%	85	1.06	1.47

Table B-6. California Bald Eagle Breeding Territory Status by Zones, 1990.

ZONE	NO. SURVEYED	NO. OCCUP.	% OCC.	% FAIL	NO. YOUNG	YNG/PAIR	YNG/SUCC.
21	5	5	100%	0%	6	1.20	1.20
22	11	11	100%	30%	10	1.00	1.43
23	8	7	88%	14%	9	1.29	1.50
24	19	19	100%	47%	19	1.00	1.90
25	19	19	100%	26%	22	1.16	1.57
26	25	19	76%	44%	16	1.00	1.78
27	5	5	100%	0%	7	1.40	1.40
28	3	3	100%	33%	3	1.00	1.50
29	0	---	---	---	---	---	---
30	1	1	100%	0%	2	2.00	2.00
31	3	2	67%	100%	0	0.00	0.00
32	1	1	100%	100%	0	0.00	0.00
33	0	---	---	---	---	---	---
35	1	1	100%	0%	1	1.00	1.00
37	0	---	---	---	---	---	---
	101	93	92%	33%	95	1.07	1.58

APPENDIX C

CALIFORNIA BALD EAGLE BREEDING TERRITORY LOCATIONS, 1970-1990

Legal descriptions given in Table C include only those sections in which are located Bald Eagle nest trees. Most nesting territories have more than one nest, and sometimes as many as five alternate nests (Lehman 1983), so more than one section may be included.

The area of each territory typically extends beyond the bounds of the listed section. Therefore, sections immediately surrounding the listed location should be considered to possibly include portions of the territory.

In addition to nest trees, other physical and silvicultural features in the nest area are included in a territory: snags and dead-topped live trees provide important perch sites for eagles in the territory; nearby trees may provide protection to the birds in the nest by screening human disturbances and may provide protection of nest trees from wind damage; large areas of land and water around the nests may be defended by the birds. Ridges, slopes, roads or other features may demarcate territory bounds. Recommended boundary lines for primary and secondary management zones around nesting sites are included in agency management plans for many of these territories.

Table C. California Bald Eagle Nest Tree Locations, 1970-1990.

ZONE/SITE	COUNTY	LOCATION	NEARBY WATER BODY
(21) Warners/Plateau			
BLUE LAKE	LASSEN	T38N, R15E, SEC 20	BLUE LAKE
ASH CREEK	LASSEN	T38N, R10E, SEC 13	ASH CREEK
RESERVOIR F	MODOC	T43N, R09E, SEC 13	RESERVOIR F
BRELER RES	MODOC	T42N, R07E, SEC 1	BRELER RES
HANGING ROCK	MODOC	T41N, R08E, SEC 11, 15	PIT RIVER
(22) Klamath Basin			
METORITE	MODOC	T48N, R12E, SEC 25	GOOSE LAKE
WILDHORSE RES	MODOC	T47N, R10E, SEC 5	WILDHORSE RES
WILLOW CR	MODOC	T47N, R08E, SEC 12, 14	WILLOW CR
JENNY CR	SISKIYOU	T48N, R05W, SEC 24	IRON GATE RES
COPCO RES	SISKIYOU	T48N, R03W, SEC 27; T47N, R03W, SEC 5	COPCO RES
MUSKGRAVE CR	SISKIYOU	T46N, R02W, SEC 18	JUANITA LAKE
MT HEBRON	SISKIYOU	T45N, R02W, SEC 23	MISS LAKE
BRAY	SISKIYOU	T44N, R01W, SEC 20	ORR LAKE
GRASS LK	SISKIYOU	T44N, R03W, SEC 21	GRASS LK
MT DOME	SISKIYOU	T46N, R02E, SEC 24	LOWER KLAMATH LK
MEDICINE LK	SISKIYOU	T43N, R03E, SEC 14	MEDICINE LK
(23) North Coast			
CAROLINE CR	SISKIYOU	T46N, R12W, SEC 23, 24	KLAMATH RIVER
CANON CR	HUMBOLDT	T05N, R02E, SEC 10	HAD RIVER
TODD RANCH	HUMBOLDT	T05N, R05E, SEC 13	TRINITY RIVER
HYAMPON	TRINITY	T04N, R06E, SEC 28	TRINITY RIVER, SO. FK.
RUTH RES	TRINITY	T02S, R07E, SEC 10	RUTH RES
LAKE PILLSBURY	LAKE	T18N, R10W, SEC 10, 12, 14	LAKE PILLSBURY
MCCRARY RES	LAKE	T11N, R06W, UNSURVEYED	MCCRARY RES
(24) Shasta/Trinity			
INDIAN CREEK	SHASTA	T35N, R04W, SEC 18	SHASTA LAKE
SALT CR/SUGARLOAF	SHASTA	T35N, R05W, SEC 34, 36	SHASTA LAKE
O'BRIEN	SHASTA	T34N, R04W, SEC 6	SHASTA LAKE
HIRZ BAY	SHASTA	T35N, R04W, SEC 25	SHASTA LAKE
LITTLE SQUAW	SHASTA	T33N, R05W, SEC 8	SHASTA LAKE
PACKERS BAY/BASS MT	SHASTA	T34N, R04W, SEC 29; T33N, R04W, SEC 6	SHASTA LAKE
MCCLOUD MOUTH	SHASTA	T34N, R04W, SEC 34	SHASTA LAKE
MCCLEURE/REYNOLDS	SHASTA	T34N, R03W, SEC 26, 27	SHASTA LAKE
FLUME CYN	SHASTA	T34N, R03W, SEC 23	SHASTA LAKE
SILVERTHORN	SHASTA	T34N, R03W, SEC 33	SHASTA LAKE
DARK CYN/CLIKAPUDI	SHASTA	T33N, R03W, SEC 1, 2	SHASTA LAKE
ARBUCKLE	SHASTA	T34N, R02W, SEC 32	SHASTA LAKE
STEIN CR	SHASTA	T34N, R02W, SEC 12, 14	SHASTA LAKE
DOG GUL/BRANDY	SHASTA	T32N, R06W, SEC 20, 28	WHISKYTOWN RES
JENNING'S GULCH	TRINITY	T33N, R08W, SEC 8, 9	LEWISTON LK
PAPOOSE ARM	TRINITY	T34N, R08W, SEC 14, 15	TRINITY LAKE
BUCKEYE ARM	TRINITY	T34N, R08W, SEC 8	TRINITY LAKE
TANNERY GULCH	TRINITY	T34N, R09W, SEC 1	TRINITY LAKE
BOWERMAN RIDGE	TRINITY	T35N, R08W, SEC 27, 28	TRINITY LAKE
BRAGDON	TRINITY	T35N, R07W, SEC 17	TRINITY LAKE
IRISH ISLES	TRINITY	T35N, R07W, SEC 28	TRINITY LAKE
PLUMMER HILL	TRINITY	T36N, R07W, SEC 4, 11	TRINITY LAKE

Table C (continued).

ZONE/SITE	COUNTY	LOCATION	NEARBY WATER BODY
(25) Pit River			
SISKIYOU LK	SISKIYOU	T40N, R05W, SEC 35	SISKIYOU LK
PIT 6	SHASTA	T36N, R01W, SEC 21	PIT 6 RES
IRON CYN RES	SHASTA	T37N, R01W, SEC 20, 21	IRON CANYON RES
MCCLLOUD RES	SHASTA	T38N, R02W, SEC 15	MCCLLOUD RES
HAGEN FLAT	SHASTA	T36N, R09E, SEC 9	PIT 5 RES
PIT RIM	SHASTA	T36N, R02E, SEC 9	PIT 4 RES
PIT 3 POWERHOUSE	SHASTA	T36N, R02E, SEC 9	PIT 4 RES
LK. BRITTON, SO.	SHASTA	T37N, R03E, SEC 28; T36N, R032, SEC 3	LAKE BRITTON
LK. BRITTON, NO.	SHASTA	T37N, R03E, SEC 17, 19	LAKE BRITTON
CATTOW CR/CLARK RD	SHASTA	T37N, R03E, SEC 20	LAKE BRITTON
DUSTY	SHASTA	T37N, R03E, SEC 26	LAKE BRITTON
TWO KNOBS	SHASTA	T37N, R03E, SEC 26; T36N, R03E, SEC 1	LAKE BRITTON
DRY LAKES	SHASTA	T37N, R03E, SEC 25, 36	LAKE BRITTON
HAT CR	SHASTA	T36N, R04E, SEC 28, 33	HAT CREEK
FALL R MILLS	SHASTA	T37N, R05E, SEC 31; T36N, R05E, SEC 5	PIT RIVER
SPRING CR	SHASTA	T38N, R04E, SEC 21	FALL RIVER
BIG LK	SHASTA	T38N, R05E, SEC 20, 22	BIG LAKE
UPPER ROBERTS	MODOC	T40N, R07E, SEC 32; T39N, R07E, SEC 5	UPPER ROBERTS RES
LITTLE EGG LK	MODOC	T40N, R06E, SEC 10, 11	LITTLE EGG LAKE
(26) Lassen/Plumas			
BIG JACK LAKE	LASSEN	T34N, R09E, SEC 20	BIG JACK LAKE
CLIGHORN	LASSEN	T33N, R11E, SEC 9	EAGLE LAKE
BLACK MT, NO.	LASSEN	T32N, R11E, SEC 27	EAGLE LAKE
BLACK MT, SO.	LASSEN	T32N, R11E, SEC 34	EAGLE LAKE
GALLATIN PEAK	LASSEN	T31N, R11E, SEC 4	EAGLE LAKE
WILDCAT POINT	LASSEN	T32N, R10E, SEC 36; T32N, R11E, SEC 25	EAGLE LAKE
OSPREY AREA	LASSEN	T32N, R11E, SEC 19	EAGLE LAKE
SPAULDING	LASSEN	T32N, R11E, SEC 7	EAGLE LAKE
ICE CAVE	LASSEN	T33N, R10E, SEC 36	EAGLE LAKE
ROUND VL RES 2	LASSEN	T31N, R12E, SEC 18, 19, 29, 30	ROUND VALLEY RES
MCCOY FLAT	LASSEN	T30N, R09E, SEC 11	MCCOY FLAT RES
SWAG LK	LASSEN	T31N, R06E, SEC 33	SWAG LK
MT MEADOWS, W.	LASSEN	T28N, R09E, SEC 20	MOUNTAIN MEADOWS RES
MT MEADOWS, E.	LASSEN	T28N, R09E, SEC 27	MOUNTAIN MEADOWS RES
HUD CREEK RIM	PLUMAS	T29N, R07E, SEC 34	LAKE ALMANOR
COLLINS PINE NO.	PLUMAS	T28N, R06E, SEC 24; T28N, R07E, SEC 30	LAKE ALMANOR
COLLINS PINE SO.	PLUMAS	T28N, R07E, SEC 30, 31	LAKE ALMANOR
PRATTVILLE	PLUMAS	T27N, R07E, SEC 14, 23	LAKE ALMANOR
ROCKY POINT	PLUMAS	T27N, R08E, SEC 19, 20, 30	LAKE ALMANOR
COOL SPRINGS	PLUMAS	T26N, R07E, SEC 3	BUTT VALLEY RES
BUTT VALLEY DAM	PLUMAS	T26N, R07E, SEC 11	BUTT VALLEY RES
BUTT VAL DAM II	PLUMAS	T26N, R07E, SEC 2	BUTT VALLEY RES
ROUND VL RES 1	PLUMAS	T26N, R09E, SEC 22	ROUND VALLEY RES
SNAKE LK	PLUMAS	T24N, R09E, SEC 5	SNAKE LAKE
BUCKS LK	PLUMAS	T24N, R07E, SEC 34	BUCKS LAKE
LTL GRASS VL RES	PLUMAS	T22N, R09E, SEC 33; T21N, R09E, SEC 3	LITTLE GRASS VALLEY RES
ANTELOPE LK	PLUMAS	T27N, R12E, SEC 26	ANTELOPE LAKE
MOSQUITO SLOUGH	PLUMAS	T24N, R13E, SEC 19	DAVIS LAKE
COW CR/CROCKER	PLUMAS	T24N, R13E, SEC 15, 32	DAVIS LAKE
FRENCHMAN RES	PLUMAS	T24N, R16E, SEC 21, 28	FRENCHMAN RES

Table C (continued).

ZONE/SITE	COUNTY	LOCATION	NEARBY WATER BODY
(27) Valley/Foothills			
MCCUMBER RES	SHASTA	T31N, R02E, SEC 15, 16	MCCUMBER RES
BATTLE CR	SHASTA	T29N, R03W, SEC 1, 10	BATTLE CR
STONY GORGE	GLENN	T20N, R06W, SEC 28, 34	STONY GORGE RES
POW POWERHOUSE	BUTTE	T22N, R04E, SEC 36; T22N, R05E, SEC 31	LAKE OROVILLE
SPRING HOLLOW	BUTTE	T20N, R05E, SEC 35	LAKE OROVILLE
(28) Sierra Nevada			
BULLARDS BAR RES	YUBA	T18N, R08E, SEC 7	NEW BULLARDS BAR RES
STAMPEDE RES	SIERRA	T19N, R17E, SEC 16, 17	STAMPEDE RES
UNION VAL RES	EL DORADO	T12N, R14E, SEC 14, 29	UNION VALLEY RES
(30) Central Coast			
LAKE CACHUMA	S. BARBARA	T06N, R29W, UNSURVEYED	LAKE CACHUMA
(31) Channel Islands			
EAST END-CATALINA	LOS ANGELES	118 19' - 33 18'	OCEAN (SANTA CATALINA IS)
PINNACLE-CATALINA	LOS ANGELES	118 20' - 33 18'	OCEAN (SANTA CATALINA IS)
TWIN ROCKS-CATALINA	LOS ANGELES	118 23' - 33 25'	OCEAN (SANTA CATALINA IS)
(32) South Coast			
ARROWHEAD	S. BERNARDINO	T02N, R03W, SEC 18	ARROWHEAD, SILVERWOOD LKS
(35) Carson/Walker			
TOPAZ LK	MONO	T09N, R22E, SEC 1	TOPAZ LAKE

APPENDIX D.

UNCONFIRMED BALD EAGLE NESTING AREAS
REPORTED TO CDFG FROM 1968 TO 1990

The following list includes unconfirmed or inadequately documented reports of nests or nesting activity suspected by local observers. It excludes reports considered by staff to have been pairs with winter-built nests, other probable wintering birds, and species misidentifications.

COUNTY	AREA	TIME PERIOD	REMARKS
AMADOR	COMANCHE RES, CHINA GULCH	1968-72	
AMADOR	COMANCHE RES, NO. SHORE	1990	
COLUSA	EAST PARK RES.	1990	
DEL NORTE	MYNOT CR.	1969	
DEL NORTE	ROWDY CR	1969-71	
DEL NORTE	HIGH DIVIDE RD.	1969	
EL DORADO	CAMINO HEIGHTS AIRPORT	EARLY 80s	NOT CHECKED
EL DORADO	EMERALD BAY	1970	
FRESNO	PINE FLAT RES., TRIMMER'S	1970	
GLENN	BLACK BUTTE RES., JULIAN ROCKS	1985	NEST ONLY
HUMBOLDT/ TRINITY	SO. FK. TRINITY R. (WILLOW CREEK TO SALYER)	1981-85	
LAKE	INDIAN VALLEY RES.	1986	
LASSEN	"HEARTFAILURE GRADE TERRITORY"	1975-77	
LASSEN	WILLOW LAKE/WARNER VALLEY AREA	1986	
LASSEN	FEATHER LAKES	1988	NEST BUILDING
LASSEN	STRAYLOR LAKE	1976	NEST ONLY
LASSEN	CLEAR CREEK, HAMILTON BRANCH	1973	
MARIPOSA	S. FK. MERCED R., PEACHTREE BAR	1967	NEST ONLY
MENDOCINO	COW MT. RANCH	1967	PROB. NOT B.E. NEST
MODOC	WILLOW CREEK NO. 2	LATE 70s	NEST ONLY
MODOC	HWY 139 QUARANTINE STATION	1968	DOUBTFUL
MODOC	DEAD HORSE RES. AREA	1968	
MODOC	CLEAR LAKE, SO. SHORE	1968	
MODOC	HOUSEHOLDER RES.	1989	ADULT PAIR
MODOC	TIMBER MOUNTAIN	1960s	DOUBTFUL
NAPA	LK. BERRYESSA, E. SHORE	1970-83	
NEVADA	BOWMAN/WEAVER/MEADOW LKS AREA	1989-90	
NEVADA	TRUCKEE MEADOWS, MARTIS CR. LK.	LATE 80s	ADULTS IN SUMMER
S. L. OBISPO	SANTA MARGARITA LAKE	1981	
SHASTA	RISING RIVER LAKE	1981	FAILED ATTEMPT?
SHASTA	CRYSTAL SPRINGS, BIG LAKE	1984	FAILED ATTEMPT?
SHASTA	PIT 7 RES (HOGBACK MT.)	1973	
SHASTA	EASTERN LAKE BRITTON, S. SHORE	1972	
SHASTA	BARTLE GAP	1975	
SHASTA	W. OF STEIN CR., SHASTA RES.	1970	POS. OSPREY NEST
SHASTA	BUCKHORN LAKE	EARLY 80s	
SISKIYOU	WHITEHORSE FLAT	1968	
SISKIYOU	DORRIS HILL, PLEASANT VALLEY	1979-85	
SISKIYOU	MCGAVIN PEAK, SECRET SPRING MT.	1979-85	
SISKIYOU	IRON GATE RES, BOGUS CR	1979-85	
SISKIYOU	RED ROCK LKS VAL, SHEEP MT.	1979-86	
SISKIYOU	ANTELOPE SINK, CEDAR MT.	1979-85	
SISKIYOU	ANTELOPE CR LKS, HART'S MT.	1979-85	
SISKIYOU	DRY LAKE, BLUE CANYON RD	1979-85	
SISKIYOU	LAKE SHASTINA	1979-85	
SISKIYOU	WEST HAIGHT MT.	1984-86	
SONOMA	RUSSIAN RIVER, MOUTH	1972	PROB. OSPREY NEST
TEHAMA	WILSON LAKE	1986-90	
TRINITY	MILLER, SO. FK., TRINITY R.	1979-83	POS. FORMERLY ACTIVE
TRINITY	SALT FLAT, TRINITY R.	1985	DOUBTFUL
TRINITY	BIG BAR/DEL LOMA, TRINITY R.	1972	